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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,966	02/28/2005	Yozo Shoji	1640.1033	3180
21171	7590	01/18/2008		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER FLORES, LEON	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 01/18/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/525,966

Applicant(s)

SHOJI ET AL.

Examiner

Leon Flores

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. Figures (6 & 7) should be designated by a legend such as ~~--Prior Art--~~ because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**3. Claims (1-3 & 5-7) are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (hereinafter Prior art), and in view of Meidan et al. (hereinafter Meidan) (US Patent 5,506,863)**

Re claim 1, Prior art discloses a frequency hopping wireless communication method for performing communications in a frequency hopping system among a plurality of wireless communication terminals, characterized in that: each of the plurality of wireless communication terminals modulates a transmission signal in the frequency hopping system using the intermediate frequency band modem (See fig. 6), and demodulates a received signal (See fig. 7); generates a radio modulation signal by multiplying an intermediate frequency band modulation signal from an intermediate frequency band modem by a local oscillation signal, and transmits the radio modulation signal (See fig. 6); and generates an intermediate frequency band demodulation signal downconverted by multiplying a radio modulation signal by a local oscillation signal, and demodulates the signal in the intermediate frequency band modem. (See fig. 7)

But Prior art fails to teach one transmitting station transmitting a reference local oscillation signal; each of the plurality of wireless communication terminals receives the reference local oscillation signal from the transmitting station, amplifies and band filtering the signal, regenerates the reference local oscillation signal by an injection synchronous oscillator or an amplifier, and using the signal as a local oscillation signal for use by a transmitting function and a receiving function.

However, Meidan does. (See figs. 1 & 2: 100, 200, 156, 149, 141 & col. 10, lines 10-25) Meidan discloses one transmitting station transmitting a reference local

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oscillation signal (156); each of the plurality of wireless communication terminals receives the reference local oscillation signal from the transmitting station, amplifies and band filtering the signal, (100 & 200) regenerates the reference local oscillation signal by an injection synchronous oscillator or an amplifier, and using the signal as a local oscillation signal for use by a transmitting function and a receiving function. (Col. 10-22, col. 6, lines 61-63)

Therefore, taking the combined teachings of Prior art and Meidan as a whole. It would have been obvious to one of ordinary skills in the art to have incorporated these features into the system of Prior art, in the manner as claimed as taught by Meidan, for the benefit of optimizing the communication system.

Re claim 2, the combination of Prior art and Meidan further discloses one transmitting station for transmitting only the reference local oscillation signal. (See figs. 1 & 2: 156)

Re claim 3, the combination of Prior art and Meidan further discloses that wherein one of the plurality of wireless communication terminals acts as a base station or a parent station ("base site communication unit") and transmits a local oscillation signal for use in the station together with a radio modulation signal (See fig. 2: 200 & col. 9, lines 60-63 & col. 8, lines 6-50), and each child station ("subscriber communication unit") which is one of the other wireless communication terminals

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receives a reference local oscillation signal transmitted by the base station or the parent station. (See fig. 1: 100 & col. 9, lines 60-63)

Claim 5 is a system claim corresponding to method claim 1. Hence, the steps performed by method claim 1 would have necessitated the elements in system claim 5. Therefore, claim 5 has been analyzed and rejected w/r to claim 1 above.

Claim 6 is a system claim corresponding to method claim 2. Hence, the steps performed by method claim 2 would have necessitated the elements in system claim 6. Therefore, claim 6 has been analyzed and rejected w/r to claim 2 above.

Claim 7 is a system claim corresponding to method claim 3. Hence, the steps performed by method claim 3 would have necessitated the elements in system claim 7. Therefore, claim 7 has been analyzed and rejected w/r to claim 3 above.

4. **Claims (4 & 8) are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (hereinafter Prior art) in view of Meidan et al. (hereinafter Meidan) (US Patent 5,506,863), and further in view of Yozo Shoji et al. (hereinafter Yozo) "Proposal of Millimeter-wave Self-heterodyne Communication System", Communications Research Laboratory, Ministry of Posts and Telecommunications, June 2000.**

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5. Re claim 4, Prior art discloses a frequency hopping wireless communication method for performing communications in a frequency hopping system among a plurality of wireless communication terminals, characterized in that: in the plurality of wireless communication terminals, a transmitting unit inputs to a mixer a modulation signal generated in an intermediate frequency band and a frequency hopping signal obtained by a hopping synthesizer controlled by a hopping pattern generator, and obtains a frequency hopping radio signal; and transmits the signal through an antenna.

(See fig. 6)

But Prior art fails to disclose that it amplifies an output signal of a hopping synthesizer used as a local oscillation signal in addition to a frequency hopping radio modulation signal of a single-side band wave or a both-side band wave by an amplifier without a band pass filter, and the receiving unit of the wireless communication terminal downconverts a received signal to a first intermediate frequency band signal using a local oscillation signal frequency hopping in a pattern obtained by adding a fixed frequency offset to a frequency hopping pattern corresponding to a desired received wave.

However, Meidan does. (See fig. 2: 108, fig. 1: 120, 122, 142, 141 128 & col. 8, lines 6-50) Meidan discloses a transmitter that amplifies (108) an output signal of a hopping synthesizer used as a local oscillation signal in addition to a frequency hopping radio modulation signal of a single-side band wave or a both-side band wave by an amplifier without a band pass filter (108. Furthermore, one skilled in the art would know that a signal can be sent either as a single-side band or double-side band), and the

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receiving unit of the wireless communication terminal downconverts a received signal to a first intermediate frequency band signal using a local oscillation signal frequency hopping in a pattern obtained by adding a fixed frequency offset to a frequency hopping pattern corresponding to a desired received wave. ( col. 8, lines 6-50)

The combination of Prior art and Meidan discloses the limitations as claimed above, except they do not explicitly teach that it extracts two signal components, that is, a local oscillation signal component and a modulation signal component, by passing the downconverted signal through a band pass filter and generates a product component of the two signal components, thereby regenerating a second intermediate frequency band modulation signal.

However, Yozo does. (See fig. 4 & sections 2 & 3, equation 2.) Yozo discloses a receiver that performs square-law detection.

Therefore, taking the combined teachings of Prior art, Meidan, and Yozo as a whole. It would have been obvious to one of ordinary skills in the art to have incorporated these features into the system of Prior art, as modified by Meidan, in the manner as claimed and as taught by Yozo, for the benefit of eliminating the influence of the phase-noise and frequency offset caused by mixing with the local carrier at the transmitter. (See sections 1 & 2)

Claim 8 is a system claim corresponding to method claim 4. Hence, the steps performed by method claim 4 would have necessitated the elements in system claim 8. Therefore, claim 8 has been analyzed and rejected w/r to claim 4 above.




**Contact**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF  
November 5, 2007

  
DAVID C. PAYNE  
SUPERVISORY PATENT EXAMINER